SCIENTICO INDIA
Manufacturer & Exporter · Ambala, Haryana, India

PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Photovoltaic Solar Energy Advanced Trainer | RVX-006

Category: Renewable Energy · **Order Code:** RVX-006 · **Country of Origin:** India

Product Overview

The Photovoltaic Solar Energy Advanced Trainer RVX-006 is a modular solar power training system for the theoretical and practical study of PV energy generation across characterisation, off-grid, and on-grid domains. It supports fourteen experiments including PV curve recording, inner resistance calculation, standalone 230V AC system design, battery charging measurement, grid inverter efficiency determination, and mains failure response investigation. The system comprises seventeen plug-in modules including a Dual Solar Panel Module, MPPT Charge Controller, Grid ON Inverter Module, Inverter Module, Electric Energy Measurement Module, Solar Irradiance Measurement Module, Active DC Load, Load Lamp 1 Module, Network Monitor, Circuit Breaker, Fixed Single Phase Power Supply, and Artificial Light Source with intensity control. DAQ software designed in National Instruments LabVIEW is optional and runs on any Windows system.

View this product online: https://scienticoindia.com/product/photovoltaic-solar-energy-advanced-trainer-rvx-006/



Request a model-specific quotation
Include quantity and delivery country.

Technical Specifications

Photovoltaic Solar Energy Advanced Trainer, Bill of Materials

Sr. No.	Module / Component	Qty
1	MPPT Charge Controller Module	1
2	Load Management Module	1
3	Active DC Load Module	1
4	Network Monitor Module	1
5	Circuit Breaker Module	1
6	Fixed Single Phase Power Supply Module	1
18	Dual Solar Panel Module	1
9	Grid ON Inverter Module (Grid Tied)	11
0	Electric Energy Measurement Module	11
1	Battery	11
2	Solar Irradiance Measurement Module	11
3	Inverter Module	11
4	Artificial Light Source Module	11
5	Artificial Light Control Module	11

Sr. No.	Module / Component	Qty
6	Set of Leads	11
7	Frame	1

Key Features

Key Features

Solar Power Training System: modular platform covering PV characterisation, off-grid, and on-grid operation
Solar Panel Characterisation: voltage-irradiation, current-irradiation, current-voltage, and current-power curves obtainable
Solar Radiation Measurement: dedicated Solar Irradiance Measurement Module included
Panel Positioning: inclination and azimuth adjustment supported
Shadow Formation: PV module response to shadow formation investigable
Inner Resistance Calculation: solar panel inner resistance calculable from measurements
Overload Measurement: voltage and current of PV module measurable under overload conditions
Off-Grid Battery Charging: generated power and battery charging measurable simultaneously
DC Load Supply: solar panel and battery combined to supply DC load
Standalone PV System: design and testing of standalone PV system in direct storage and 230V AC supported
MPPT Charge Controller: maximum power point tracking for optimised battery charging
Grid Energy Measurement: electricity delivered to and exchanged with mains grid measurable
Inverter Efficiency: grid-connected inverter efficiency determinable
Mains Failure Response: PV system response to mains failure investigable
Dual Inverter Configuration: Grid ON Inverter Module and Inverter Module both included
Load Lamp Module: Load Lamp 1 Module included for AC lamp loading experiments
Network Monitoring: Network Monitor Module included
Circuit Protection: Circuit Breaker Module included
Fixed Single Phase Power Supply: Fixed Single Phase Power Supply Module included
Artificial Light Source: light source with intensity control included as standard for indoor use
DAQ Software: National Instruments LabVIEW based (optional), Windows compatible, electronic sensors included

Experiments
Solar Panel Characterisation

Measuring solar radiation: changing the inclination and azimuth of the solar panel
Investigating the PV module response to shadow formation
Recording the Solar Panel Voltage-Irradiation Curve
Recording the Solar Panel Current-Irradiation Curve (calculating the inner resistance of the solar panel)
Obtaining the solar panel current-voltage curve
Obtaining the solar panel current-power curve
Measurement of the voltage and current of the photovoltaic module with overload

Off-Grid System

Measuring the generated power of a PV system and battery charging
Using solar panel and battery to supply a DC load
Design and testing of a standalone PV system in direct storage operation and 230V AC

On-Grid System

Measuring the electricity delivered to the mains grid
Measuring the electricity produced by the solar panel, delivered to or taken from the mains grid, and the loading of AC lamps
Determining the efficiency of the grid-connected inverter
Investigating the response of a PV system to a mains failure

Construction and Design
The Photovoltaic Solar Energy Advanced Trainer RVX-006 is built on a modular frame accommodating seventeen discrete plug-in modules. The solar power training system features a Dual Solar Panel Module with adjustable inclination and azimuth. A Solar Irradiance Measurement Module captures solar radiation data directly. The MPPT Charge Controller Module handles battery charging with maximum power point tracking. An Inverter Module supports off-grid AC output at 230V. The Grid ON Inverter Module enables grid-tied operation and inverter efficiency measurement. The Electric Energy Measurement Module records energy exchanged with the mains grid. A Load Management Module, Active DC Load Module, and Load Lamp 1 Module support load-side experiments. A Fixed

Single Phase Power Supply Module, Network Monitor Module, and Circuit Breaker Module complete the power distribution and protection architecture. An Artificial Light Source Module and Artificial Light Control Module are included as standard for indoor training. All modules connect via the included set of leads.

Software
DAQ software specially designed in the National Instruments LabVIEW environment to measure and calculate experimental results. A set of electronic sensors is included for use with the software. Compatible with any Windows operating system. Software is optional.

Scope of Delivery

MPPT Charge Controller Module (x1)
Load Management Module (x1)
Active DC Load Module (x1)
Network Monitor Module (x1)
Circuit Breaker Module (x1)
Fixed Single Phase Power Supply Module (x1)
Load Lamp 1 Module (x1)
Dual Solar Panel Module (x1)
Grid ON Inverter Module, Grid Tied (x1)
Electric Energy Measurement Module (x1)
Battery (x1)
Solar Irradiance Measurement Module (x1)
Inverter Module (x1)
Artificial Light Source Module (x1)
Artificial Light Control Module (x1)
Set of Leads (x1)
Frame (x1)

Optional Accessories

DAQ Software, LabVIEW-based, with electronic sensors

Ordering & Delivery

- Send the product name, quantity, delivery country and destination with your enquiry.
- Production schedule, freight, payment terms and export documents are confirmed in the written quotation.

Frequently Asked Questions

Q1. What operational modes does the Photovoltaic Solar Energy Advanced Trainer RVX-006 support?
The system supports three operational modes: PV panel characterisation, off-grid system operation with battery storage, and on-grid system operation with mains grid connection.
Q2. Can the RVX-006 be used for indoor training?
Yes. An Artificial Light Source Module and Artificial Light Control Module are included as standard, enabling full indoor operation without natural sunlight.
Q3. What off-grid experiments can be performed on the RVX-006?
The solar power training system supports measuring generated power and battery charging, supplying a DC load from solar panel and battery, and designing and testing a standalone PV system in direct storage operation and 230V AC.
Q4. Is the battery included with the RVX-006?
Yes. A battery is included in the scope of delivery as listed in the module table.
Q5. What grid-side measurements are supported by the RVX-006?
The system measures electricity delivered to the mains grid, electricity produced and exchanged with the mains grid alongside AC lamp loading, grid-connected inverter efficiency, and PV system response to mains failure.

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